

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

International Serial No.: PCT/EP 00/04697

Applicant: CEAG SICHERHEITSTECHNIK GmbH et al

(New) Claim

1. An electric plug connector (1), in particular for explosion-proof areas, comprising a plug (2) and a socket (3), which includes at least a housing (4) and a socket insert (7) supported in said housing (4) such that it is rotatable between off and on positions (5, 6), said socket insert (7) being adapted to be rotated between its positions (5, 6) by means of the plug (2) inserted in the socket (3), a locking means (8) being supported in the socket insert (7) such that it is displaceable between a locking position (9) and a release position (10), and the socket insert (7) being rotatable between the off and on positions (5, 6) when the locking means (8) is in the release position (10),

characterized in that

said locking means (8) is provided with at least one coding projection (11) which, in the condition in which the plug (2) is inserted in the socket insert (7), is adapted to be arranged in a complementary coding aperture (12) in the plug (2) thus arranging the locking means (8) at its release position (10).

Claims

- Sub
A1
1. An electric plug connector (1), in particular for explosion-proof areas, comprising a plug (2) and a socket (3), which includes at least a housing (4) and a socket insert (7) supported in said housing (4) such that it is rotatable between off and on positions (5, 6), said socket insert (7) being adapted to be rotated between its positions (5, 6) by means of the plug (2) inserted in the socket (3), characterized in that a locking means (8) is supported in the socket insert (7) such that it is displaceable between a locking position (9) and a release position (10), said locking means (8) being provided with at least one coding projection (11) which, in the condition in which the plug (2) is inserted in the socket insert (7), is adapted to be arranged in a complementary coding aperture (12) in the plug (2) thus arranging the locking means (8) at its release position (10), the socket insert (7) being rotatable between the off and on positions (5, 6) when the locking means (8) is in the release position (10).
 2. An electric plug connector according to claim 1, characterized in that the locking means (8) is implemented as a locking pin (13) which is supported in the socket insert (7) such that it is longitudinally displaceable between the locking and release positions (9, 10) essentially in the plug-in direction (14) of the plug (2).
 3. An electric plug connector according to claim 1 or 2, characterized in that, when occupying the release position (10), the locking pin (13) projects with one of its ends (15) as a coding projection (11) beyond the socket insert (7) in the direction of the plug (2).
 4. An electric plug connector according to at least one of the preceding claims, characterized in that the locking pin (13) has a force applied thereto in the direction of the release position (10).
 5. An electric plug connector according to at least one of the preceding claims, characterized in that the locking pin (13) is arranged essentially centrally in the socket insert (7).
 6. An electric plug connector according to at least one of the preceding claims, characterized in that the coding projection (11) is implemented such that its cross-section is com-

plementary to the cross-section of the coding aperture (12).

- Sub.
D/
cont
7. An electric plug connector according to at least one of the preceding claims, characterized in that the socket insert (7) is provided with a longitudinal guide means (16) for the locking pin (13), the cross-section of said longitudinal guide means being substantially equal to the cross-section of the coding projection (11).
 8. An electric plug connector according to at least one of the preceding claims, characterized in that reception holes (17) for electric contact pin bushings (18) are arranged around said longitudinal guide means (16) in the socket insert (7).
 9. An electric plug connector according to at least one of the preceding claims, characterized in that the locking pin (13) projects beyond said longitudinal guide means (16) with its lower end (19) located opposite the plug (2) and is provided with a stop (20) which is adapted to be brought into contact with a lower end (21) of the longitudinal guide means (16).
 10. An electric plug connector according to at least one of the preceding claims, characterized in that the stop (20) is implemented as upper end (22) of an end sleeve (23) of the locking pin (13) which is open at the bottom, said end sleeve being adapted to accommodate at least part of a spring (24) for applying a force to the locking pin (13) in the direction of the locking-pin release position (10).
 11. An electric plug connector according to at least one of the preceding claims, characterized in that a centering pin (25) is arranged centrally in the end sleeve (23), at least part of the spring (24) being adapted to be pushed onto said centering pin (25).
 12. An electric plug connector according to at least one of the preceding claims, characterized in that the socket insert (7) is supported in an annular element (27) at least in the lower end section thereof (26), the socket insert (7) being adapted to be inserted together with said annular element (27) in a plug housing (28) which is releasably secured to the housing (4).

Sub:
A1
Cont.

13. An electric plug connector according to at least one of the preceding claims, characterized in that the annular element (27), the socket insert (7) and the plug housing (28) are flush with one another at their respective lower ends (29, 30, 58) facing the housing (4) and project partially into a housing aperture (31) in said housing (4).
14. An electric plug connector according to at least one of the preceding claims, characterized in that the plug housing (28) is provided with a circumferentially extending edge flange (32) which is releasably secured to an edge (33) of said housing aperture (31).
15. An electric plug connector according to at least one of the preceding claims, characterized in that the plug housing (28) is adapted to be connected to a diskshaped switching means (34) within the housing (4), said switching means (34) supporting the contact pin bushings (18) and comprising at least one fastening disk (35) and one switching disk (36) which are rotatable relative to one another and disposable at two locking positions (37, 38).
16. An electric plug connector according to at least one of the preceding claims, characterized in that the fastening disk (35) is provided with a locking aperture (40) on its front face (39) facing the socket insert (7), the lower end (19) of the locking pin (13) being insertable into said locking aperture (40), whereby the socket insert (7) and the fastening disk (35) are coupled such that they are secured against rotation relative to one another.
17. An electric plug connector according to at least one of the preceding claims, characterized in that the annular element (27) is provided with a dog (41) projecting towards the switching means (34), said dog (41) extending through a slot guide means (42) in the fastening disk (35) and engaging a dog reception means (43) arranged on the switching disk (36).
18. An electric plug connector according to at least one of the preceding claims, characterized in that the annular element (27) has a substantially L-shaped guide slot (44) for an arresting insert (46) which is supported on the outer circumference (45) of the socket insert (7) in a longitudinally displaceable manner, said arresting insert (46) being adapted to be moved along the vertical L-leg (47) by a plug collar (48) of the plug (2),

Sub
81
cont.

when the plug is being inserted in the socket insert (7), and subsequently along the horizontal L-leg (49) by rotating the socket insert (7) relative to the annular element (27).

19. An electric plug connector according to at least one of the preceding claims, characterized in that the arresting insert (46) is provided with an arresting projection (50) which projects radially outwards relative to the socket insert (7) and which is adapted to be brought into contact with edges (51) of the guide slot (44).
20. An electric plug connector according to at least one of the preceding claims, characterized in that the arresting insert (46) is supported in at least one support pocket (52) such that it is displaceable in the longitudinal direction (53) of the socket insert (7), said support pocket (52) being arranged on the lower end section (26) of the socket insert (7).
21. An electric plug connector according to at least one of the preceding claims, characterized in that a spring (55) for applying a force to the arresting insert (46) in the direction of the plug (2) is arranged between said arresting insert (46) and the base (54) of the support pocket (52).
22. An electric plug connector according to at least one of the preceding claims, characterized in that a plurality of support pockets (52) is arranged along the circumference of the socket insert (7), said support pockets (52) being especially arranged in juxtaposition.
23. An electric plug connector according to at least one of the preceding claims, characterized in that the coding projection (11) has a semicircular, divided circular, circular, bident, trident or multident or an angular cross-section.
24. An electric plug connector according to at least one of the preceding claims, characterized in that the fastening disk (35) is provided with a guide wall (56) projecting in the direction of the socket insert (7) and engaging an annular groove (57) in the lower end (58) of the socket insert (7) so as to rotatably support the same.

- Sub
A.
concluded
25. An electric plug connector according to at least one of the preceding claims, characterized in that the switching-disk back (59) which is located opposite the fastening disk (35) has provided thereon at least one trip cam (60), which, in response to a rotational displacement of the switching disk (36) by means of the dog (41), adjusts a switching means (61) of an interrupter switch (62) to a connection position or to an interrupt position, said interrupter switch (62) being arranged in the housing (4).